

**Slider for zip fastener with two tabs for operating it  
by disengaging locking means**

5 The present invention relates to the technical field of zip fasteners, and more particularly to those members known as sliders which close and open a zip fastener by respectively connecting and releasing from each other two rows of teeth which face each other and lie  
10 parallel to each other.

More specifically, the invention relates to sliders of the type provided with two tabs, with connecting rings located on opposite sides of the zip fastener plane,  
15 one of these rings being pulled to move the slider in the desired direction by disengaging from the teeth a locking member which, when inserted between the teeth, prevents undesired movements of the slider.

20 An example of an embodiment of this kind of slider according to the prior art is described in the patent US-A-4123828 held by YKK.

25 The hollow body of the slider houses two interfering levers which are in contact with each other and are connected to the aforementioned rings of the said two tabs. These levers are positioned in such a way that, when either one of the two tabs is operated as stated, a locking pawl with which one of the two levers is  
30 provided is disengaged from the teeth.

35 Since the said pawl must return to its locking position with respect to the teeth of the fastener after the slider has been moved, the slider houses elastic means which reinsert the said pawl between the teeth when the action of one of the tabs on the said lever ceases.

In the YKK patent cited above, and in the prior art in general, these elastic means consist of an elastically

flexible body mounted within the hollow body of the slider which is in contact with the lever carrying the previously described pawl in such a way that it opposes the movements of the said lever which cause the said 5 pawl to be extracted from the teeth of the fastener.

However, the use of an elastic body (a flexible strip in the YKK patent mentioned above) requires relatively lengthy and inconvenient assembly operations, which, 10 given the relatively low cost of a slider with two tabs, causes a significant proportional increase in this cost.

The inventor of the slider to which the present 15 application relates sought a simple, economical and reliable solution, and has devised a slider of the type described above, in which the previously described elastic means which cause the pawl to return to its locking position consist of an elastically flexible 20 strip forming part of the said lever which terminates in the aforesaid pawl. This strip has one end integral with the lever in question, and faces an internal wall of the hollow body of the slider, in such a way that it is interposed between this body and the said lever and 25 its elastic resistance opposes movements of the lever which cause the aforesaid pawl to be extracted from the teeth of the fastener.

The object of the present invention is therefore a 30 slider for zip fasteners with two tabs as described in the attached Claim 1.

A preferred example of embodiment of the slider according to the invention will now be described in 35 greater detail, with reference to the attached drawings, in which:

- Figure 1 is a longitudinal section through the said example of embodiment in which the pawl in which one of the two levers terminates is inserted

between the teeth of a fastener;

- Figure 2 is the longitudinal section of Figure 1 showing the pawl disengaged from the teeth of the fastener by the action of one of the two tabs with which the slider is provided;
- Figure 3 is the longitudinal section of the preceding figures, showing the pawl disengaged from the teeth of the fastener by the action of the other tab with which the slider is provided.

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Figure 1 shows how the slider 1 with two tabs 2 and 3 according to the invention is similar to those of the known type in respect of the arrangement of its parts: two L-shaped levers 5 and 6 are positioned in a hollow body 4, these levers interfering with each other and being in contact at one end, and housed on opposite sides of the area occupied by the teeth  $D_i$  (shown only schematically in the drawing).

20 Each of the two levers 5, 6 is connected to a ring  $2r$ ,  $3r$  of the tabs 2, 3 in such a way that pulling on either of the tabs (see Figures 2 and 3) causes, directly or indirectly, a rotation (arrow R) of one of the levers, indicated by the number 5 in the figures, 25 which causes the extraction of a pawl 7, in which it terminates, from the teeth  $D_i$  between which it is interposed to lock the slider 1 as stated previously, thus preventing movements of the slider which may cause an undesired opening or closing of the fastener (which 30 is not shown in full). This system is known in the prior art; the novelty of the invention consists in the fact that one end 8e of a flexible strip 8, formed and positioned in such a way as to face an internal wall 4p of the hollow body 4 of the slider 1, is fixed on the 35 back of the lever 5 carrying the pawl 7. When the said lever 5 is rotated, as shown in Figures 2 and 3, the elastic resistance to bending of the strip 8 is overcome, and the pawl 7 is extracted from the teeth  $D$ . When a force ceases to be exerted on one of the tabs 2,

3 and through its terminal rings 2r, 3r, the elasticity of the strip 8 returns the lever 5 and the corresponding pawl 7 to the initial locking position shown in Figure 1.

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The lever 5 and strip 8 can advantageously be combined in one piece, as in the illustrated example, so that the lever and strip assembly can be produced in a single operation.

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To impart greater reliability and extended life to the components of the slider 1 according to the invention, the inventor suggests that the levers 5 and 6 and the strip 8 be made from a metallic material, for example steel, with good characteristics of bending and fatigue resistance, or from a plastic material.

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It should be noted that the strip 8 can be positioned as in the drawings, or can have one end integral with the free end 51 of the lever 5 carrying the pawl 7 (this embodiment is not illustrated).